

release notes

# HP StorageWorks Replication Solutions Manager 1.0

**Product Version:** 1.0

Third Edition (February 2005)

**Part Number:** AA-RW1CC-TE

This document provides information about HP StorageWorks Replication Solutions Manager that is not covered in other user documentation. Individuals who configure, install, and use HP StorageWorks Replication Solutions Manager should consult this document for last-minute content.

For the latest version of these release notes and other HP Continuous Access EVA documentation, see the HP storage web site <http://h18000.www1.hp.com/storage/software.html> and navigate to the HP Continuous Access EVA product page. There click the **Technical documentation** link.



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## HP StorageWorks Replication Solutions Manager release notes

## About this document

These release notes include the following major topics:

- [Configurations with HP OpenView Storage Area Manager](#), page 4
- [Server, GUI, and general issues](#), page 6
- [Enabled hosts/host agents, host volumes, and operating systems](#), page 10
- [Jobs and job commands](#), page 13
- [Remote replication solution](#), page 16

## Intended audience

This document is intended for storage network administrators who install, configure, or use HP StorageWorks Replication Solutions Manager (called the replication manager in this document).

## Related documentation

To obtain related documents, browse to your product from the HP storage web site <http://h18006.www1.hp.com/storage/software.html>, or go directly to the product page <http://h18006.www1.hp.com/products/storage/software/conaccesseva/index.html>

From there, click the **Technical documentation** link.

The following documents are available:

- *HP StorageWorks Continuous Access EVA overview*
- *HP StorageWorks Continuous Access EVA planning guide*
- *HP StorageWorks Continuous Access EVA administrator guide*
- *HP StorageWorks Continuous Access EVA license key installation instructions*
- *HP StorageWorks Continuous Access EVA Performance Estimator user guide*
- *HP StorageWorks Continuous Access EVA 2.0 release notes*
- *HP StorageWorks EVA replication compatibility reference*
- *HP StorageWorks JREserver installation guide*
- *HP StorageWorks Replication Solutions Manager installation guide*
- *HP StorageWorks Replication Solutions Manager Command Line User Interface reference*

For information about HP StorageWorks Enterprise Virtual Array 3000, see:

<http://h18006.www1.hp.com/products/storageworks/eva3000/index.html>

For information about HP StorageWorks Enterprise Virtual Array 5000, see:

<http://h18006.www1.hp.com/products/storageworks/enterprise/index.html>

For HP OpenView Storage Operations Manager, see:

<http://h18006.www1.hp.com/products/storage/software/som/index.html>

For HP Openview Storage Management Appliance, see:

<http://h18006.www1.hp.com/products/sanworks/managementappliance/index.html>

For SAN design or SAN extensions, see:

<http://hp.com/go/sandesignguide>

# Configurations with HP OpenView Storage Area Manager

## Configuration A - Separate storage management servers

The preferred configuration is for the Storage Area Manager management server software to be installed on a separate server and not share the HP StorageWorks Replication Solutions Manager management server (also called the replication server) that is licensed for HP StorageWorks Continuous Access EVA. (This deployment of the Storage Area Manager management server is sometimes called *not-SAN-attached*, *LAN-only*, or a *management station*.)

In this configuration, the Storage Area Manager management server uses only remote proxies to communicate with the remote instances of HP StorageWorks Command View EVA on the primary and standby replication servers.

Use the following general steps to create this configuration.

1. If not already installed, install the Storage Area Manager server software on a separate server. See the *HP OpenView Storage Area Manager Installation and Configuration Guide* for more information.
2. Ensure that HP Command View EVA is installed on primary and standby replication servers.
3. Install HP Replication Solutions Manager server software on the primary replication server.
4. Install HP Replication Solutions Manager server software on the standby replication server.

## Configuration B - Collocation with HP Replication Solutions Manager on a standby server

If the Storage Area Manager management server software is not installed on a separate server (Configuration A), HP recommends that it be installed on a *standby* replication server.

If the Storage Area Manager management server software is not already installed, install it on the existing or planned standby replication server as follows:

1. Identify which servers will be the primary and standby replication servers.
2. If not already installed, install HP Command View EVA on the primary and standby replication servers.
3. On the primary replication server, ensure that HP Command View EVA is managing the EVA arrays. See the *HP StorageWorks Continuous Access EVA Administrator Guide*, “Moving storage management to another server,” for instructions.
4. Install the Storage Area Manager management server software on the standby replication server. See the *HP OpenView Storage Area Manager Installation and Configuration Guide* for more information.
5. Add the instance of HP Command View EVA on the primary replication server as a management proxy to the Storage Area Manager management server on the standby replication server. See the Storage Area Manager online help for adding management proxies.
6. Install HP Replication Solutions Manager server software on the primary replication server.
7. Install HP Replication Solutions Manager server software on the standby replication server.

If the Storage Area Manager management server software is already installed on the existing or planned primary replication server, use the following general steps to change the roles of the management servers.

1. In Storage Area Manager on the existing primary replication server (server A), add the instance of HP Command View EVA on the standby replication server (server B) as a management proxy. See the Storage Area Manager online help for adding management proxies.
2. Move storage management to the instance of HP Command View EVA on server B. Server B is now the primary replication server. See the *HP StorageWorks Continuous Access EVA Administrator Guide*, “Moving storage management to another server,” for instructions.
3. In Storage Area Manager on server A, delete the management proxy to server A’s (local) instance of HP Command View EVA. See Storage Area Manager online help for deleting management proxies.
4. Storage Area Manager on server A is now configured to use server B for its management proxy.
5. If not already installed, install HP Replication Solutions Manager server software on the primary replication server.
6. If not already installed, install HP Replication Solutions Manager server software on the standby replication server.

For daily operations, use the primary replication server to keep HP Continuous Access EVA operations separate from Storage Area Manager management operations. If the primary replication server fails, use the standby replication server for HP Continuous Access EVA operations.

## Replication manager host agent installation conflicts

The replication manager does not support installation of replication manager host agents in configurations where Storage Area Manager host agents have already been locally installed.

If you wish to use replication manager host agents in this case:

1. On each host, locally uninstall the Storage Area Manager host agent.
2. Deploy the Storage Area Manager host agent to each host, using the Storage Area Manager. See the Storage Area Manager installation guide and online help for more information.
3. Deploy the replication host agent to each host, using the Storage Area Manager. See the replication manager installation guide for more information.

## Replication manager host agent deployment from a separate management server

If the Storage Area Manager management server software is not installed with HP Replication Solutions Manager server software on the management server (See [Configuration A - Separate storage management servers](#), page 4) there are additional considerations for installing replication manager host agents.

- To deploy replication manager host agents, the replication management server software and HP Command View EVA and must also be installed on the separate Storage Area Manager management server.
- However, because a separate Storage Area Manager management server is not attached to a SAN, you do not need to configure or launch the replication manager server or HP Command View EVA.

## Server, GUI, and general issues

### Server installation requirement for C: drive

Install HP Replication Solutions Manager server software only on servers that boot from their C : drive.

### Contention for management resources

HP Replication Solutions Manager and various HP SAN management software, including Storage Area Manager, Data Protector, and others, share a command path through HP Command View EVA. On rare occasions, the burden on HP Command View EVA can cause a command from the replication manager to be rejected with the following error: `Borg Error: Code 600059`. If this error occurs, you have two options:

- Reissue the command when there is less contention for management resources. You can typically reissue the command within minutes after receiving the error.
- If time is critical, browse to the HP Continuous Access EVA standby server, assume control of the array using HP Command View EVA, and reissue the command using HP Replication Solutions Manager.

### Local browsing is not supported

Do not use a browser on a given management server to browse to an instance of the replication manager running on *that* server. The local browsing limitation also applies to running a browser remotely via a Terminal Services session.

### Online Help search appears to hang or not start

If you use the Search tab in the online Help window and no occurrences are found, it may appear that the search has not been performed or is hung. This is because JavaHelp does not indicate that the search has been completed. (When found, results appear in the pane below the Find box.) A similar problem arises when searching for words on the Index tab.

### Importing the replication manager database

When using Tools > Import RSM Database with a database that includes many jobs, allow several minutes for the action to complete. For example, a database that includes 20 jobs may take 5 to 10 minutes to import.

### Configuration, Clear Event Log, and Enable Trace Log settings

The Clear Event Log setting on the Log Settings window deletes events from the event log only, not from the trace log. This is the intended behavior.

You cannot manually clear events from the Trace Log. You can only enable or disable the Trace Log. When the trace log is full, new events cause the oldest events to be deleted so that the log maintains a constant size.

### Running jobs and CLUI commands using Perl scripts

You can write Perl scripts to run replication manager jobs and execute Command Line User Interface (CLUI) commands.

For more information on using scripts and other methods of accessing the CLUI, see the *HP StorageWorks Replication Solutions Manager Command Line User Interface Reference* and the online Help.

## Invalid parameters error when deleting a DR group

In some cases, attempting to delete a DR group may result in an invalid parameters error and the DR Group will not list any virtual disk members.

In this case, try refreshing the replication manager database by clicking the discover database icon on the toolbar. See [Refreshing the replication manager database \(discovering resources\)](#), page 7. After refreshing the database, try the delete DR group action again.

## No hard returns in DR Group comments

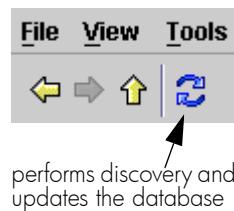
When using the Editing DR Group window (Edit Properties action), do not use the Enter key to include hard returns in a comment. If you include a hard return in a comment and click Finish, the interface displays an Action Failed window with the message:

Parsing error encountered: DrGroupProperties\_1101052909458

To correct the problem:

4. On the Action Failed window, click **OK**. The editing window closes and the changes are discarded.
5. Reopen the Editing DR Group window. Re-enter your changes and re-enter the comment without using a hard return.
6. Click **Finish**. The editing changes and comment are saved.

## Refreshing the replication manager database (discovering resources)



Clicking the database refresh icon on the toolbar performs a discovery of available storage arrays, virtual disks, enabled hosts, and host volumes, and updates the replication manager database.

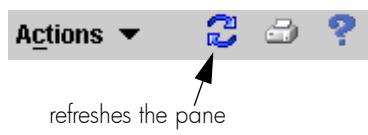
A database refresh can take several minutes or more, depending on the size of the environment. Typical use of the database refresh icon is to force an update of the database after resources have been changed by applications other than the replication manager.

**Tip:** Do not click this icon to refresh the display.

To ensure that you are about to use the correct refresh icon, move the mouse pointer over the icon. A tooltip displays whether the refresh is for the database or a content pane.

**Note:** New enabled hosts are not automatically discovered or added to the database. To be visible to the replication manager, an administrator must manually add them after installing replication manager host agents.

## Refreshing a replication manager pane



Clicking the refresh icon on a pane refreshes the pane.

The Content pane and the Event pane each have a refresh icon. Clicking the icon updates the respective pane using data from the replication manager database.

Information in the Content pane is not updated automatically. Following a resource change, you should click the refresh icon, or click a different resource in the navigation pane, to view the changes.

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**Tip:** Do not use your browser's refresh button to update the replication manager window. Using the browser refresh may end the replication manager session. To restart the session you must login again to the replication manager server.

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## About automatic database refreshes of known resources

By default, the replication manager performs a discovery and refreshes its database of *known* storage arrays and enabled host resources every 30 minutes (1800 seconds).

A database refresh uses resources on your management server and EVA arrays. Depending on the configuration and tasks, administrators may want to adjust this refresh period.

- If other applications are using the same EVA arrays, or are installed on the same management server, a short database refresh period may slow the performance of the storage arrays or management server. In this case, consider a longer refresh period.
- If the storage configuration is large, or there are long delays in the environment, a refresh can take a long time and may slow the replication manager. In this case, consider a longer refresh period so the replication manager spends less time performing refreshes.
- If you are configuring an environment or performing testing, the default refresh period may be too long for changes to be reflected quickly in the database. In this case, consider temporarily setting the refresh period to a few minutes.
- If you are only monitoring storage, the default refresh period may be shorter than required. In this case, consider setting the refresh period to several hours.

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**Tip:** Immediately after making changes to a storage array through another interface, use the refresh database feature to update the replication manager database.

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**Note:** The database refresh period can be set using: Tools > Configure > Select Storage Access > Management Servers > EVA Management Servers

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## About automatic discovery of new resources

The replication manager also performs separate discoveries to identify *new* resources:

- New storage arrays and their virtual disks - every minute
- New *host volumes* on known enabled hosts - every ten minutes

When new resources are found, it may take some time to gather the new information and add it to the database.

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**Note:** The discovery periods for new resources cannot be changed.

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**Note:** New enabled hosts are not automatically discovered or added to the database. To be visible to the replication manager, an administrator must manually add them after installing replication manager host agents.

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## Snapshot and snapclone Vraid limitation

If you use HP Replication Solutions Manager to create snapshots and snapclones, observe the following caution:

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**Caution:** Do not select Vraid0 for a snapshot or snapclone if the source is at Vraid1 or Vraid5. If such a snapshot or snapclone is affected by a disk failure, performance of the source virtual disk can severely degrade.

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This limitation is specific to array controller software versions VCS 3.020 and 3.025.

## Snapshot and snapclone Vraid recommendations

For snapshots, HP recommends selecting a Vraid level with equal or lower redundancy than the source virtual disk. For snapclones, you can select a Vraid level with higher redundancy than the source. [Table 1](#) shows the recommended Vraid selections for snapshots and snapclones based on the Vraid of the source virtual disk.

**Table 1: Recommended snapshot and snapclone Vraid selections by source Vraid**

Source Vraid	Source Redundancy Level	Recommended snapshot Vraid	Recommended snapclone Vraid
Vraid0	Lowest	Vraid0*	Vraid0*, 5, 1
Vraid5	Medium	Vraid5	Vraid5, 1
Vraid1	Highest	Vraid1, 5	Vraid5, 1

\* Source and destination virtual disks must be in the same disk group.

The ability to create a snapshot or snapclone with less redundancy than the source virtual disk allows you to save space. You cannot create a snapshot with greater redundancy than its source because a snapshot contains only changed data and refers to the source for unchanged data. Consequently, if the source becomes inoperative, the snapshot also becomes inoperative. You *can* create a snapclone with greater redundancy than its source because a snapclone is an independent copy of the source.

## Enabled hosts/host agents, host volumes, and operating systems

The term *All* in the following headings refers to all replication manager host agents.

### All - Accessing copies of raw volumes

A *raw* volume is storage that is not formatted with a file system. Raw volumes are typically accessed directly by a host application and not by the host OS or a file system.

You can use the replication manager to make copies (snapshots and snapclones) of raw volumes. However, using the *CreateHostVolume* command with a raw volume does not make the raw copy accessible to an application.

To make the copy of a raw volume accessible to a host application, you must perform additional operations outside of the replication manager.

### All - Replication and mounting of host volumes must be OS consistent

When you use the replication manager to make a copy (snapshot or snapclone) of an original host volume and then attempt to mount the copy on an enabled host, you must ensure that the enabled host is running the same OS version as the original.

For example, if you make a snapshot of a Red Hat Linux 3.0 host volume, then it must be mounted on an enabled host that is running Red Hat Linux 3.0.

### All - Host agent removal using HP OVSAM sometimes fails

When attempting to remove a host agent using HP OpenView Storage Area Manager, the removal sometimes fails with the message:

Set of packages installed on host system <yourhost> do not match the set of expected packages. The update/remove operation has been aborted as a precaution. If you still wish to proceed, please restart the update/remove operation for this host system.

If this occurs, reboot the host, then retry the removal.

### Linux - Mounting a copy on the original enabled host is not supported

After you make a copy (snapshot or snapclone) of an original Linux host volume, you cannot mount the copy on the enabled host where the original is mounted. This is an OS limitation.

### Linux - Host agent does not support HP Secure Path

The replication manager host agent for Linux supports the multipath features of the Qlogic HBA but does not support HP StorageWorks Secure Path for Linux. For more information, see the HP StorageWorks EVA Replication Compatibility Reference.

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**Note:** Linux and HP Secure Path are fully supported on hosts in remote replication environments that do not require the host agent.

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## Linux - HP OVSAM deployment of host agents to SUSE hosts is not supported

The replication manager host agent for Linux must be installed directly onto SUSE Linux hosts. Do not attempt installation by using the remote deployment feature of HP OpenView Storage Area Manager (OVSAM).

## Linux and UNIX - Script files, shell directive requirement

When using the replication manager to run script files on Linux and UNIX enabled hosts, ensure that the first line of the script file is a shell directive. Commands sent by the replication manager to an enabled host are not automatically run within a host shell. If the first line of a script file is not a shell directive, the enabled host will not execute the script.

## Linux and UNIX - Changing the IP address for enabled hosts

During installation of a replication manager host agent, you are prompted to enter the IP address of the enabled host. For Linux and UNIX hosts, the IP address is saved in the replication manager file:

`/opt/sanmgr/hostagent/config/commIpAddr.txt`

If you enter the IP address incorrectly or change the IP address of the enabled host, you must manually edit the *commIpAddr.txt* file.

To change the saved IP address:

1. Open the `/opt/sanmgr/hostagent/config/commIpAddr.txt` file in a text editor.
2. Change the IP address and save the file.
3. Restart the host agent.

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**Note:** Removing (uninstalling) the host agent does not remove the saved IP address. If you re-install the host agent, you are not prompted for the IP address.

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## Windows - Dynamic disks are not supported

The replication manager host agent for Windows detects *basic* and *dynamic* disks and both types are displayed in the Host Volumes content pane. However, local replication (snapshots and snapclones), mounting, and unmounting of *dynamic* disks are not supported by the replication manager.

## Windows - Host agent support of MPIO and DSM

In addition to supporting HP StorageWorks Secure Path for Windows, the replication manager host agent for Windows also supports Microsoft Multipath I/O (MPIO) and device-specific modules (DSM). MPIO provides native OS drivers and support for multipathing. DSM provides support of vendors's specific hardware solution.

## Windows 2000 - Unsafe device removal pop-ups

When the replication manager unmounts a host volume, Windows 2000 displays a pop-up message on the enabled host regarding unsafe removal of a device. The appearance of this message does not indicate a problem with the replication manager and can be cleared by clicking OK.

If the enabled host is unattended, the pop-up messages can accumulate on the desktop and consume memory. To prevent this behavior, HP recommends that you do not login to the desktop of an enabled host.

## **Windows 2000 - Mounts and unmounts fill up the Event Log / Event Log sizing**

Despite its plug-and-play features, Windows 2000 is not fully compatible with the dynamic mount and unmount operations performed by the replication manager. In particular, each dynamic mount and unmount can generate entries in the Windows Event Log.

Typical event entries include device arrival and departure notifications from the Windows Removable Storage Manager (RSM). If HP StorageWorks Secure Path for Windows is installed, the *raiddisk.sys* driver may also report path-failure errors during device removal.

These Event Log entries are not an indication of a problem and can be ignored. However, the replication manager implementations that involve heavy mount/unmount activity can generate a significant number of log entries.

When sizing the Windows Event Log, size the log accordingly.

## Jobs and job commands

The term *All* in the following headings indicates that the issue applies to all supported operating systems.

### All - Characters used in job names

Job names can include alphabetical characters, numbers, spaces and underscores. No other characters are supported.

### All - Running one job at a time (for a given enabled host)

If you have two or more jobs that interact with the *same enabled host*, run only one job at time. This limitation applies only to jobs that interact with an enabled host, for example, jobs that include *host volume commands* for local replication or mounting. Jobs that interact only with storage systems are not subject to the limitation, for example, jobs that include only *storage volume commands*.

When planning jobs that interact with the same enabled host, consider designing a single larger job rather than several smaller jobs that might overlap.

You can also use the *pause* action or command to pause jobs so that just one job is interacting with the enabled host at any given time.

Symptoms of job overlap include log messages such as: *Createhostvolume failed with Unknown exception on host: BCCAHostAgent:native...* or *Createhostvolume failed No storage volume name given job name.*

### All - Running jobs simultaneously may decrease job performance

Running several jobs simultaneously can decrease job performance. For example, if each of three jobs normally takes one minute to compete when run alone, the set of three jobs might take about 3 minutes to complete if run at the same time.

If you experience slow job performance, running simultaneous jobs may be the cause.

### All - Unmounting a host volume while a job instance is running causes failures

If you include an *unmount* command in a job, do not use other methods to unmount the host volume while the job is running. For example, if you *pause* a job and manually unmount a host volume and then continue the job, the job will fail when it attempts to execute the *unmount* command.

### All - Status icon for a failed job instance is incorrect in the Event pane

If a job has a paused-with-error status, the Job Status icon in the Monitor Job window correctly displays the status. In the Event pane, however, the job status icon incorrectly shows the job status as paused normally.

### All - Job instance is paused-with-error at an UnmountHostVolume command

If a job is paused-with-error at an *UnmountHostVolume* command, it may be because the host agent encountered a busy condition when attempting the unmount. This can occur if the replication manager was performing a discovery of enabled hosts when the unmount was attempted.

To clear this condition, use the *Continue* action in the GUI, or an equivalent CLUI *Set Job* command to continue the job.

To reduce the potential for this type of timing conflict, design your jobs so that *UnmountHostVolume* commands use conditional branching to retry the command when an error is encountered. For more information, see *Conditional Branching* in the online Help.

## All - Job instance fails when an enabled host is in an unknown state

Sometimes a job instance may fail because a referenced enabled host is in an unknown state. In this case, wait for a replication manager discovery to update the enabled host agent state, then use the *Continue* action in the GUI, or an equivalent CLUI *Set Job* command to continue the job.

## All - Job instance hangs at a SnapshotHostVolume or other command

If a job hangs, try refreshing the replication manager database by clicking the discover database icon on the toolbar. See [Refreshing the replication manager database \(discovering resources\)](#), page 7. Refreshing the database allows a hung command to be completed. The job can then proceed normally.

## All - Using the PresentStorageVolume job command

Considerations when using the *PresentStorageVolume* command in a job.

**General case.** This case applies if you are presenting a virtual disk (storage volume) that is not a member of any DR group, or the virtual disk is a member of a *source* DR group:

For the *access type*, select *read\_only* or *read\_write*, as appropriate. Do not select *none*.

When the job command is executed, the write-protect attribute of the virtual disk is changed to correspond to your selection.

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**Caution:** Due to a bug, selecting *none* does not stop all I/O but actually allows reads and writes to the presented virtual disk.

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**Caution:** When the job command is executed, the access type that you have selected is applied to all existing presentations of the virtual disk.

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**Destination case.** This case applies only if you are presenting a virtual disk (storage volume) this is a member of a *destination* DR group.

For the access type, select *read\_only* or *none*, as appropriate. Do not select *read\_write* (it is not supported for destinations).

The access type that you select is actually ignored by the replication manager. When the job command is executed, no change is made to the write-protect attribute of the virtual disk. However, HP recommends selecting an appropriate entry so that the intent of the command is clear when viewing the job.

If you need to change the access type of a destination virtual disk, determine the DR group in which the virtual disk is a member and use either of the following methods:

- To change the access type from within the job, include a separate *SetDRGroupDestinationAccess* command and specify the DR group and *none* or *read\_only* for the destination access.
- To change the access type from the GUI, select the destination DR group and use the Edit Properties action.

## Linux - Dynamic mount/unmount of non-volume group devices is not supported

Do not use the *CreateHostVolume* or *DeleteHostVolume* job commands with Linux */dev/sd* or */dev/sg* host volumes (devices) that are not part of a volume group.

An incompatibility between the replication manager host agent for Linux and the Qlogic HBA driver causes problems with the dynamic unmounting of */dev/sd* or */dev/sg* physical devices that are not part of a volume group. Specifically, a job will hang at a *DeleteHostVolume* command. The problem will be addressed in a future release of the replication manager host agent for Linux or the Qlogic HBA driver.

## Remote replication solution

### DR group job command usage

Job commands that apply only to *source* DR groups:

SetDrGroupDestinationAccess	SetDrGroupFailsafe
SetDrGroupIoMode	SetDrGroupSuspend

Job commands that apply only to *destination* DR groups:

FailoverDrGroup

Job commands that apply to source *and* destination DR groups:

DeleteDrGroup	SetDrGroupComments
SetDrGroupHome	SetDrGroupName
WaitDrGroupNormalization	

### DR group CLUI commands usage

CLUI commands and switches that apply only to *source* DR groups:

Command: a[dd] dr[\_group]|drg <dr\_group name>

Switch: all switches

Command: set dr[\_group]|drg <dr\_group name>

Switch:

- [add[\_vdisk]|av=<vdisk name>]
- [fails[afe]|fs]
- [nofailsafe]|nfs]
- [nos[uspend]|ns]
- [sus[pend]]
- [wr[itemode]|wm={ synchronous|asynchronous }]

CLUI commands and switches that apply only to *destination* DR groups:

Command: set dr[\_group]|drg <dr\_group name>

Switch: [failo[ver]|fo]

CLUI commands and switches that apply to source *and* destination DR groups:

Command: set dr[\_group]|drg <dr\_group name>

Switch:

- [rem[ove\_vdisk]|remvd|rwd=<vdisk name>]
- [del[ete]]
- [home]
- [na[me]=<new dr\_group name>]

Command: de[lete] dr[\_group]|drg <dr\_group name>